May 11, 2017

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Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services, et al.*, GN Docket No. 14-177, IB Docket No. 15-256, WT Docket No. 10-112, and IB Docket No. 97-95

Dear Ms. Dortch:

EchoStar Satellite Operating Corporation, Hughes Network Systems, LLC, Inmarsat, Inc., Intelsat Corporation, and WorldVu Satellites Ltd. d/b/a OneWeb, (collectively, the "Satellite Broadband Operators") provide this ex parte to supplement the record on the requirements of satellite operators to have access to downlink spectrum at the 37.5-42.5 GHz band to pair with corresponding uplink spectrum at 47.2-50.2 and 50.4-52.4 GHz bands. Both uplink and downlink spectrum are necessary to provide satellite broadband services, including remote education, public protection, disaster response, and telemedicine, to consumers.

In a previous filing, the Satellite Broadband Operators proposed reasonable approaches that strike an appropriate balance between Fixed Satellite Service (FSS) and Upper Microwave Flexible Use Service (UMFUS) operators in the 47.2-50.2 and 50.4-52.4 GHz bands (respectively, the 47 and 50 GHz bands), accommodating both UMFUS development and FSS use by individually licensed earth stations and user terminals.[1] The utility of the 47 GHz and 50 GHz Earth-to-space bands for FSS is dependent on adequate and suitable space-to-Earth allocations to accommodate downlinks for both individually licensed earth stations and user terminals. FSS access to the entirety of the 37.5-42.5 GHz space-to-Earth allocations is necessary to maintain parity with the Earth-to-space allocations and assure that the requirements of both station types are met.

The Satellite Broadband Operators (jointly with SES Americom, Inc., O3b Limited, and The Boeing Company) have proposed reasonable rules for sharing between individually licensed FSS earth stations and UMFUS systems in the 37.5-40 GHz band.[2] While sharing between FSS and UMFUS is feasible under these conditions below 40 GHz, there is a need for exclusive

[1] Ex parte letter filed by EchoStar Satellite Operating Corporation, Hughes Network Systems, LLC, Inmarsat, Inc., Intelsat Corporation, and WorldVu Satellites Ltd. d/b/a OneWeb (filed April 13, 2017).
[2] Joint Reply to Oppositions filed by The Boeing Company, EchoStar Satellite Operating Corporation, Hughes Network Systems, LLC, Inmarsat, Inc., Intelsat Corporation, O3b Limited, SES Americom, Inc., and WorldVu Satellites Ltd. d/b/a OneWeb (filed February 24, 2017), at 5-7.

uplink *and* downlink spectrum for ubiquitous user terminals. We contemplate that the 40-42.5 GHz band, which is not under consideration in this proceeding, will provide the exclusive downlink spectrum that is necessary to deploy user terminals on a widespread basis with the protection necessary to these services directly to consumers.[3] This spectrum can be paired with the exclusive uplink spectrum the Satellite Broadband Operators have proposed at 48.2-50.2 GHz.[4]

The proposals in our letter of April 13 strike a fair and spectrally efficient balance between the needs of FSS and UMFUS operators in the 47 GHz and 50 GHz bands and recognize the need to ensure that multiple platforms that will be part of the 5G ecosystem have access to sufficient spectrum. The utility of this spectrum to the satellite industry requires continued access to corresponding downlink spectrum at 37.5-42.5 GHz bands, some of which may be shared, and some of which must be exclusive for FSS use.

The Satellite Broadband Operators urge the Commission to pursue and implement the approach suggested in their April 13 letter as expeditiously as possible, while giving due consideration to corresponding downlink requirements.

[3] It is recognized that the whole of the 37.5-42.5 GHz band is being contemplated for IMT identification at WRC-19. The Satellite Broadband Operators are making plans for future broadband networks based on the identification of the 37.5-40 GHz band for UMFUS in the United States.

[4] Given the asynchronous nature of consumer broadband use (reflected by the FCC's different standards for broadband speeds for downloads (25 Gbps) versus uploads (3 Gbps), it is anticipated there will be more demand for downlink than uplink capacity by user terminals, and vice versa at individually licensed earth stations. A strict 1:1 correspondence of uplink and downlink allocations is not necessary for each type of earth station, but is necessary in aggregate.

Respectfully submitted,

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